

AMENDMENTS TO THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

① (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, which comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl cellulose wherein the alkyl group has 1 to 3 carbon atoms, and ~~may be at least a part of the alkyl group is substituted by a hydroxyl group or a carboxyl group, and wherein the carboxyl group may be in the form of a salt, and 5 to 2,000 parts by weight of water.~~

2. (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, according to claim 1, wherein the alkyl cellulose is carboxyalkyl cellulose, hydroxyalkyl cellulose, or alkyl cellulose, having at least one ~~hydroxyl group or carboxyl group~~ per glucose unit of the alkyl cellulose, or a mixture of these alkyl celluloses.

3. (Previously Presented) A process for producing a self-cross-linked alkyl cellulose, according to claim 1, wherein 20% or more of the entirety of carboxyl groups of the alkyl cellulose is in the form of an alkali metal salt, an ammonium salt, or an amine salt.

4. (Previously Presented) A process for producing a self-cross-linked alkyl cellulose, according to claim 2, wherein the alkyl cellulose has an average polymerization degree of 10 to 2,000 and an average etherification degree of 0.5 or more.

5. (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, according to claim 1, wherein the ~~self-cross-linking~~ self-cross-linked alkyl cellulose has a gel fraction of 0.1% or more.

6. (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, according to claim 1, wherein the ~~does~~ dose of radioactive rays is 0.1 kGy or more.

7. (Previously Presented) A process for producing a self-cross-linked alkyl cellulose, according to claim 1, which further comprises drying the self-cross-linked cellulose.

8. (Previously Presented) A self-cross-linked alkyl cellulose, produced by process according to any one of claims 1-7. *prod by process, does not further limit.*

C 9. (Previously Presented) A self-cross-linked alkyl cellulose according to claim 8, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the percent biodegradation of the self-cross-linked alkyl cellulose is 50% or more.

10. (Previously Presented) A self-cross-linked alkyl cellulose according to claim 9, wherein the percent biodegradation is 70% or more.

11. (Previously Presented) A self-cross-linked alkyl cellulose according to claim 8, wherein the self-cross-linked alkyl cellulose absorbs 30 time or more its weight of distilled water.

12. (Previously Presented) A self-cross-linked alkyl cellulose according to claim 8, in the form of a gel having a compressive strength of 100 g/cm² or more.

13. (Canceled)

14. (Canceled)

15. (Previously Presented) A product which comprises a self-cross-linked alkyl cellulose as in claim 8.

16. (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, which comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl cellulose wherein the alkyl group has 1 to 3 carbon atoms, and may be is substituted by a ~~hydroxyl group~~ or a carboxyl group, and wherein the carboxyl group may be in the form of a salt, and 5 to 2,000 parts by weight of water so as to produce a self-cross-linked alkyl cellulose having a gel fraction of 0.1 to 30%, wherein the self-cross-linked alkyl cellulose, after drying, absorbs 20 times or more its weight in water.

17. (Currently Amended) A process for producing a self-cross-linked alkyl cellulose, which comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl cellulose wherein the alkyl group has 1 to 3 carbon atoms, and may be is substituted by a ~~hydroxyl group~~ or a carboxyl group, and wherein the carboxyl group may be in the form of a salt, and 5 to 2,000 parts by weight of water so as to produce a self-cross-linked alkyl cellulose having a gel fraction of 30% or more and a compressive strength of 100 g/cm² or more.

18. (Currently Amended) A process according to claim 16 or 17, wherein the alkyl cellulose is carboxyalkyl cellulose ~~hydroxyalkyl cellulose, or alkyl cellulose~~ having at least one ~~hydroxyl group~~ or carboxyl group per glucose unit thereof ~~a mixture of these celluloses~~.

19. (Previously Presented) A process according to claim 16 or 17, wherein 20% or more of the entirety of carboxyl groups of the alkyl cellulose is in the form of an alkali metal salt, an ammonium salt, or an amine salt.

20. (Previously Presented) A process according to claim 16 or 17, wherein the alkyl cellulose has an average polymerization degree of 10 to 2,000 and an average etherification degree of 0.5 or more.

21. (Previously Presented) A process according to claim 16 or 17, wherein the self-cross-linked alkyl cellulose has a gel fraction of 0.1% or more.

22. (Previously Presented) A self-cross-linked alkyl cellulose, produced by
process according to claim 16.] *prod by process* doesn't further
narrow.

23. (Previously Presented) A self-cross-linked alkyl cellulose according to claim
22, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of
a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of
cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the
percent biodegradation of the self-cross-linked alkyl cellulose is 70% or more.

24. (Previously Presented) A product which comprises ~~medical product, a~~
~~cosmetic product, a sanitary product, or an agricultural water retention product,~~
comprising a self-cross-linked alkyl cellulose according to claims 22 or 23.

C 25. (Previously Presented) A self-cross-linked alkyl cellulose, produced by
process according to claim 17.] *prod by process*.

26. (Previously Presented) A self-cross-linked alkyl cellulose according to claim
25, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of
a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of
cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the
percent biodegradation of the self-cross-linked alkyl cellulose is 50% or more.

27. (Previously Presented) A product which comprises ~~chromatography carrier,~~
~~an industrial material, or a soil additive,~~ comprising a self-cross-linked alkyl cellulose
according to claim 25 or 26.

28. (New) A process for producing a self-cross-linked alkyl cellulose, which
comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl
cellulose wherein the alkyl group has 1 to 3 carbon atoms, and may be substituted by a
hydroxyl group, and 5 to 233 parts by weight of water. *check prior art*

29. (New) A process for producing a self-cross-linked alkyl cellulose, according to claim 28, wherein the alkyl cellulose is hydroxyalkyl cellulose, alkyl cellulose having at least one hydroxyl group per glucose unit of the alkyl cellulose, or a mixture of these celluloses.

30. (New) A process for producing a self-cross-linked alkyl cellulose, according to claim 29, wherein the alkyl cellulose has an average polymerization degree of 10 to 2,000 and an average etherification degree of 0.5 or more.

31. (New) A process for producing a self-cross-linked alkyl cellulose, according to claim 28, wherein the self-cross-linked alkyl cellulose has a gel fraction of 0.1% or more.

C 32. (New) A process for producing a self-cross-linked alkyl cellulose, according to claim 28, wherein the dose of radioactive rays is 0.1 kGy or more.

33. (New) A process for producing a self-cross-linked alkyl cellulose, according to claim 28, which further comprises drying the self-cross-linked cellulose.

34. (New) A self-cross-linked alkyl cellulose, produced by process according to any one of claims 28-33. } Prod by process

35. (New) A self-cross-linked alkyl cellulose according to claim 34, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the percent biodegradation of the self-cross-linked alkyl cellulose is 50% or more.

36. (New) A self-cross-linked alkyl cellulose according to claim 35, wherein the percent biodegradation is 70% or more.

37. (New) A self-cross-linked alkyl cellulose according to claim 34, wherein the self-cross-linked alkyl cellulose absorbs 30 time or more its weight of distilled water.

38. (New) A self-cross-linked alkyl cellulose according to claim 34, in the form of a gel having a compressive strength of 100 g/cm² or more.

39. (NEW) A product which comprises a self-cross-linked alkyl cellulose as in claim 34.

40. (NEW) A process for producing a self-cross-linked alkyl cellulose, which comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl cellulose wherein the alkyl group has 1 to 3 carbon atoms, and may be substituted by a hydroxyl group, and 5 to 233 parts by weight of water so as to produce a self-cross-linked alkyl cellulose having a gel fraction of 0.1 to 30%, wherein the self-cross-linked alkyl cellulose, after drying, absorbs 20 times or more its weight in water.

C₁ 41. (NEW) A process for producing a self-cross-linked alkyl cellulose, which comprises irradiating, with radioactive rays, a mixture of 100 parts by weight of an alkyl cellulose wherein the alkyl group has 1 to 3 carbon atoms, and may be substituted by a hydroxyl group, and 5 to 233 parts by weight of water so as to produce a self-cross-linked alkyl cellulose having a gel fraction of 30% or more and a compressive strength of 100 g/cm² or more.

42. (NEW) A process according to claim 40 or 41, wherein the alkyl cellulose is hydroxyalkyl cellulose, or an alkyl cellulose having at least one hydroxyl group per glucose unit, or a mixture of these celluloses.

43. (NEW) A process according to claim 40 or 41, wherein the alkyl cellulose has an average polymerization degree of 10 to 2,000 and an average etherification degree of 0.5 or more.

44. (NEW) A process according to claim 40 or 41, wherein the self-cross-linked alkyl cellulose has a gel fraction of 0.1% or more.

45. (NEW) A self-cross-linked alkyl cellulose, produced by process according to claim 40. Prod. by process

46. (NEW) A self-cross-linked alkyl cellulose according to claim 45, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the percent biodegradation of the self-cross-linked alkyl cellulose is 70% or more.

47. (NEW) A product comprising a self-cross-linked alkyl cellulose according to claims 45 or 46. ?

48. (NEW) A self-cross-linked alkyl cellulose, produced by process according to claim 41. prod by process

49. (NEW) A self-cross-linked alkyl cellulose according to claim 48, wherein, when 0.2 g of the dried self-cross-linked alkyl cellulose is added to 10 ml of a buffered aqueous acetic acid solution having a pH of 4.5 containing 0.5 wt.% of cellulase and the resultant solution is allowed to stand at 40°C for eight hours, the percent biodegradation of the self-cross-linked alkyl cellulose is 50% or more.

50. (NEW) A product comprising a self-cross-linked alkyl cellulose according to claim 48 or 49.